

Weather Home Companion



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Weather Home Companion is a semiannual publication of the National Weather Service office in the Quad Cities. Contact information can be found on page 8.

April 13 Tornado Outbreak

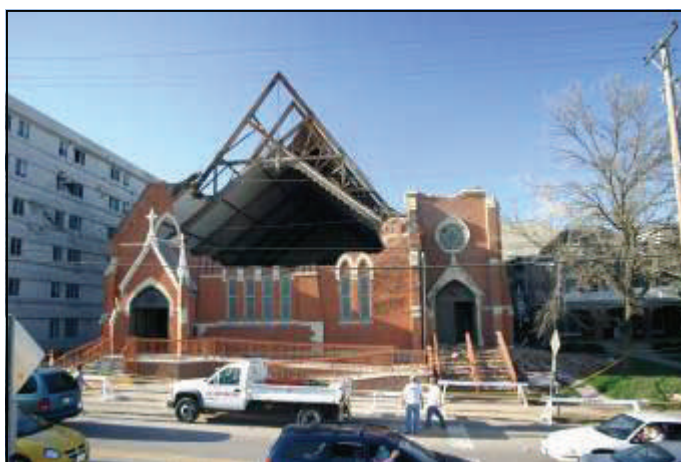
Donna Dubberke

Andy Ervin

On Thursday April 13th, thunderstorms ravaged eastern Iowa and west central Illinois. These very intense storms, called supercells, produced hail as large as baseballs, extreme damaging winds, and deadly tornadoes. In all, the Quad Cities National Weather Service confirmed that 14 tornadoes occurred in our 36 county service area in less than 3 hours. One woman lost her life when a tornado struck and destroyed her mobile home south of Nichols, Iowa. This is the first tornado fatality in our service area since 1984.

Iowa City Tornado

The strongest tornado that evening struck downtown Iowa City around 8:30 pm, just after dark. The Iowa City tornado was rated F2 on the Fujita scale, with winds estimated at 155 mph.



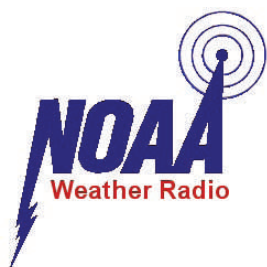
Tornado damaged St Patrick's Catholic church in Iowa City, Iowa. The quick action of a deacon and priest likely saved the lives of over 75 parishioners, who were directed to take shelter in the basement of the rectory (behind tree in right of photo).

Although there were dozens of reported injuries, there were no fatalities. Local community preparedness and quick reaction by citizens helped limit the extent of the injuries.

In one very compelling story, about 75 parishioners at St. Patrick's Catholic Church were saved by the quick action of a deacon and priest, who moved

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New NOAA Weather Radio Station in Delaware County, Iowa



In January NWS Quad Cities began broadcasting on a new weather radio station, KJY64, in Delaware County, Iowa. This station is provided through a cooperative effort between Iowa Homeland Security and Emergency Management, Delaware County Emergency Manage-

ment, Delaware County Communications, and the National Weather Service. The station is broadcasting 24/7 on 162.450 MHz from Delaware, Iowa.

Our appreciation goes to the local community for it's effort in making this new life-saving NOAA Weather Radio station happen!

The Fujita Scale

F0 (Light Damage) Chimneys are damaged, tree branches are broken, shallow-rooted trees are toppled.

F1 (Moderate Damage) Roof surfaces are peeled off, windows are broken, some tree trunks are snapped, unanchored manufactured homes are overturned, attached garages may be destroyed.

F2 (Considerable Damage) Roof structures are damaged, manufactured homes are destroyed, debris becomes airborne (missiles are generated). Large trees snapped or uprooted.

F3 (Severe Damage) Roofs and some walls are torn from structures, some small buildings are destroyed, non-reinforced masonry buildings are destroyed, most trees in forests are uprooted.

F4 (Devastating Damage) Well-constructed houses are destroyed, some structures are lifted from foundations and blown some distance, cars are blown some distance, large debris becomes airborne.

F5 (Incredible Damage) Strong frame houses are lifted from foundations, reinforced concrete structures are damaged, automobile-sized debris becomes airborne, trees are completely debarked.

April 13 Tornado Outbreak

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everyone to safety before the tornado hit the church and collapsed much of its roof, steeple and choir loft.

While April is often a busy month for tornadoes in our local area, it's important to realize that the peak of our severe weather season in May and June is still yet to come.



Damage to building and new vehicles at an Iowa City automobile dealership from the April 13 tornado. Photo by Hector Ibarra.

April 13 Tornado Timeline

7:42 pm: Marion, IA (F0)	8:45 to 8:58 pm: Nichols, IA (F1)
7:46 to 7:58 pm: near Newhall, IA (F0)	9:14 to 9:19 pm: Muscatine, IA (F0)
8:16 to 8:20 pm: Sharon Center, IA (F1)	9:19 pm: East of Iowa City, IA (F1)
8:18 to 8:20 pm: Anamosa, IA (F1)	9:28 to 9:55 pm: Buffalo Prairie, IL (F1)
8:29 to 8:40 pm: Iowa City, IA (F2)	9:30 pm: near LeClaire, IA (F1)
8:33 to 8:50 pm: Hills, IA (F1)	9:57 to 10:08 pm: Mannon, IL (F1)
8:41 to 9:05 pm: south of Nichols, IA (F1)	10:10 to 10:12 pm: Alexis, IL (F1)

NWS to Improve Tornado Rating System

The National Weather Service has announced plans to implement a new scale to rate the damage caused by tornadoes. The Enhanced Fujita (EF) Scale will replace the original Fujita (F) Scale, which has been the standard for over 35 years. Like the original F-scale, the EF Scale will continue to rate tornadoes on a scale from zero to five, but ranges in wind speed will be more accurate. The National Weather Service has approved the EF Scale and expects to implement its use in February 2007.

"The EF Scale takes into account additional variables

which will provide a more accurate indication of tornado strength," said retired Air Force Brig. Gen. David L. Johnson, director of the National Weather Service. "The EF Scale will provide more detailed guidelines that will allow the National Weather Service to more accurately rate tornadoes that strike in the United States."

Development

The F Scale was developed in 1971 by Dr. T. Theodore Fujita to rate tornadoes and estimate associated wind speed based on the damage they cause. The EF Scale refines and improves this original scale. It was developed

by the Texas Tech University Wind Science and Engineering (WISE) Research Center, along with a forum of wind engineers, universities, private companies, government organizations, private sector meteorologists and NOAA meteorologists from across the country.

Improved Accuracy

It is thought that limitations of the original F Scale may have led to inconsistent ratings, including possible overestimates of associated wind speeds. The EF Scale incorporates more damage indicators and degrees of damage than the original F Scale, allow-

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NWS to Improve Tornado Rating System

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ing more detailed analysis and better correlation between damage and wind speed.

Database Preserved

The original F Scale historical data base will not change. An F5 tornado rated years ago is still an

F5, but the wind speed associated with the tornado may have been somewhat less than previously estimated. A correlation between the original F Scale and the EF Scale has been developed. This makes it possible to express ratings in terms of one scale to the other, preserving the historical database.

At the NWS Quad Cities, we expect to begin using the Enhanced F-Scale in storm damage surveys beginning spring 2007. It is anticipated this will result in a more accurate assessment of the strength of tornadoes and associated wind speeds.

F- Scale		EF- Scale	
F Number	Wind Speed (mph)	EF Number	Wind Speed (mph)
0	<73	0	<86
1	73-112	1	86-110
2	113-157	2	111-135
3	158-206	3	136-165
4	207-260	4	166-200
5	261-318	5	>200

“The EF Scale will provide more detailed guidelines that will allow the National Weather Service to more accurately rate tornadoes that strike in the United States.”

Using Climate to Predict Severe Weather Activity

Barb Mayes

While weather forecasts are made on a day-by-day basis up to a week in advance, climate forecasts predict the average weather conditions over a period of three months up to a year in advance. Climate forecasts, because they predict averages, cannot predict day-to-day weather. But climate signals can provide important clues to the influence of larger-scale patterns on daily weather. Some climate signals are well-known and can be predicted with some skill; these include El Niño and La Niña, which are warm and cold spells in the Pacific Ocean near the equator. This pair of conditions produces known impacts on temperature and rainfall in the U.S. on larger scales, but research on the impact on local weather is only beginning.

Local research at the NWS office in the Quad Cities is beginning to explore the impact of El Niño and La Niña on severe weather in our forecast area. While we cannot link El Niño and La Niña to daily weather conditions or individual storms, we can look for trends over the course of a season to see if the climate is affecting how often we get severe weather, how severe it is, or what type of severe weather we get. So far, this research is in its early stages, but the studies do show links between the presence of an El Niño or La Niña and the amount of severe weather activity through the year.

When a La Niña occurs during the spring and summer months, the Quad Cities forecast area shows a higher-than-usual

chance of having more days with tornadoes as well as an increased risk of significant tornadoes (F2 strength or greater) throughout the year. While a forecast of a La Niña can’t help the office predict which days may bring tornadoes, it can help meteorologists and emergency managers prepare for a more active severe weather season.

During an El Niño, the Quad Cities forecast area shows a reduced risk for significant tornadoes as well as a slightly higher chance of fewer days with tornadoes than usual. But even though El Niño years are more likely to be quiet years, active years and violent tornadoes have occurred during an El Niño, which means that we

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...studies do show links between the presence of an El Niño or La Niña and the amount of severe weather activity through the year.

The accuracy of any weather forecast, depends on how far in the future the forecast is for.

...after so many years of devotion, dedication, and selfless duty, two long time observers will hang up their thermometers.

Just How Accurate are Those Forecasts Anyway?

Dan Ferry

When meeting new people, one of the more frequent questions a meteorologist is asked is, "how accurate are the forecasts?". The short answer is: it depends. The accuracy of any weather forecast, depends on how far in the future the forecast is for. Is the forecast for the next hour, the next day, week or year? The accuracy also depends on what is being forecast. Do you want to know

what the temperature will be? Is it going to rain or snow, or will there be severe thunderstorms?

In general, as you go out further in time, the accuracy of a weather forecast decreases. For example, let's look at temperature forecasts. You can be relatively certain that the temperature forecasts for the next 3

days will be within 3 degrees of what actually happens. Beyond 3 days the temperature forecast accuracy falls off to the point that beyond a week, forecasts are usually not much better than looking at climatology.

On page 5 is a graph showing how close temperature fore-

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Goodbye to Some Old Friends

Bill Elliott

The Cooperative Observer Program will say goodbye to some old friends this year. We, at the Quad Cities NWS, have been lucky to have some of the finest COOP Observers in the country. But, after so many years of devotion, dedication, and selfless duty, two long time observers will hang up their thermometers. Both were recently honored by receiving Length of Service Awards, and one was selected as a John C. Holm Award winner in 2004.

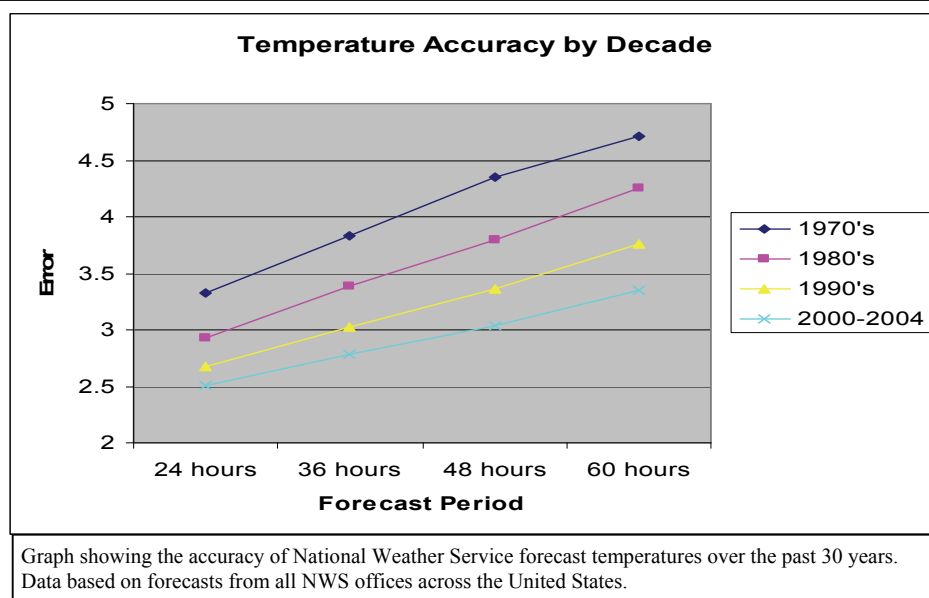
The first of our old friends is Vincent Vanis of Central City, Iowa. Vince has given 50 years to the COOP Program, and has decided to retire. He has provided rainfall amounts, watched over one of our punch-

ing rain gauges, and provided river readings for all those years. We want to take this opportunity to publicly thank Vince for all his time and effort. We would also like to thank his wife, Eileen, because behind every COOP Observer, is a family member providing support. Eileen has played a large part in Vince's success.

Our second old friend is Eugene Frye of Marion, Iowa. Eugene has been a COOP Observer for over 35 years. He too has decided to retire. Eugene provided precipitation reports and daily high and low temperature readings for all of those years. Eugene was selected in 2004 as a John C. Holm Award winner, one of

only twenty-three from across the country. He was one of the two selected that year for WFO Quad Cities, and also the first of two winners nominated from this office since it moved to Davenport from Moline.

Both of these observers will be missed by those of us that were recipients of their labors. Not only did they do an outstanding job as COOP Observers, but they are also class people that make us proud to have known them. To Vince and Eugene, we wish you the best of luck in your retirement, and thank you both for the service you provided to your country, state, and community. Thank you!



...the accuracy for temperature forecasts at 60 hours is just about the same as it was for 24 hour forecasts in the 1970s...

Forecast Accuracy

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casts are to what actually happened for each decade since 1970. As you can see in the above graph, the errors increase with time. It is also interesting to note how the temperature forecast error has decreased over the last several decades. Notice that since the year 2000, the accuracy for temperature forecasts at 60 hours is just

about the same as it was for 24 hour forecasts in the 1970s. The size of the weather system producing the weather is also an important factor in determining how accurate a forecast can be.

Large storm systems that produce widespread rain, snow, and extremes of heat and cold,

tend to occur over several states. These are routinely forecast days in advance. When you start talking about the accuracy of predicting weather events that only affect a few counties, such as severe thunderstorms, tornadoes or flash floods, then the forecasts are only accurate within a few hours of the event occurring.

Is your severe weather plan effective?

Donna Dubberke

When it comes to severe weather and disasters, we hear in the news of success stories and failures. But how do you know if your own plan is effective?

We looked at recent severe weather events in Van Wert, Ohio, Roanoke, Illinois, Utica, Illinois, and most recently Iowa City, Iowa. What stands out in the success stories – and is lacking in the failures – is a severe weather strategy that covers all the bases. In a nutshell, it's "**Plan - Practice - Monitor - Act!**"

Plan – Have a severe weather plan for your home and business. Know where your shelters are. Have a disaster supply kit in your shelter area.

Practice – Have a tornado drill. Make sure everyone knows the plan. Know how long it takes to get everyone into the shelter.

Monitor – Keep an eye on the weather, via the internet, weather radio, local media, or perhaps your own storm spotter. Use a weather radio for alerts while you are asleep.

Act – Take immediate protective action if a warning is issued or you see severe weather!

If any one of these ingredients is missing, the results can be disastrous. For more information about severe weather preparedness or "**Plan - Practice - Monitor - Act!**", visit these web sites:

www.weather.gov/quadcities/preparedness

www.weather.gov/quadcities/preparedness/ppma.php

A Disaster Supply Kit should include:

- A 3-day supply of water (one gallon per person per day) and food that won't spoil.
- One change of clothing and footwear per person.
- One blanket or sleeping bag per person.
- A first aid kit, including prescription medicines.
- Emergency tools, including a battery-powered NOAA Weather Radio and a portable radio, flashlight, and plenty of extra batteries.
- An extra set of car keys and a credit card or cash.
- Special items for infant, elderly, or disabled family members.

Visit www.ready.gov or www.redcross.org for more information.

Flood Safety Resources

- **National Weather Service Quad Cities Web site:**

www.crh.noaa.gov/dvn/?n=floodsafety

- **National Flood Safety Awareness Week Web site:**

www.weather.gov/floodsafety/

- **Turn Around Don't Drown Web site:**

tadd.weather.gov/

- **Federal Emergency Management Agency (FEMA):**

www.fema.gov/

FEMA's mission is to lead the effort to prepare our nation for floods and all other hazards. FEMA does this by effectively managing federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders and manages the National Flood Insurance Program as well as the U.S. Fire Administration.

- **FEMA Flood Smart Web Site:**

www.floodsmart.gov/

This site is the official site for the National Flood Insurance Program (NFIP). This site provides information on flood insurance and how to get it.

- **Federal Alliance for Safe Homes (FLASH):**

www.flash.org/

This organization promotes life safety, property protection and economic well-being by strengthening homes and safeguarding families from floods and other natural and manmade disasters.

Flood Safety

Jeffrey A. Zogg

Floods are the deadliest weather-related killer in the United States. Each year they kill more than 100 people and are responsible for \$4.6 billion in damage.

In addition, more than half of all flood-related deaths are drownings that result from vehicles caught in flood waters and then swept downstream. Eighty percent of all flood deaths occur when people drive into flooded roadways or simply walk through moving water. Many of these drownings are preventable if people do not drive or walk into flooded roads, sidewalks, etc. People often underestimate the force of water.

If you know what to do before, during and after a flood you can increase your chances of surviving a flood.

Flood Safety Rules

Please follow the following flood safety rules. They may help save your life.

- If flooding occurs, move to higher ground immediately. Leave areas subject to flooding. This includes dips in roads, low spots, canyons and washes.
 - Do not allow children to play near high water, storm drains or ditches. Hidden dangers often lie beneath the water. In addition, the flowing floodwaters could sweep children or other people away.
 - Avoid areas that are already flooded, especially if the floodwaters are flowing fast. Do not attempt to cross flowing streams. It only takes six inches of fast flowing water to sweep you off your feet.
 - Never drive on a flooded road. Flooded roads often have significant damage hidden by floodwaters. In addition, most vehicles lose contact with the road in six inches of water and can be swept away in 18 to 24 inches of water.
 - Do not camp or park your vehicle along streams or washes, particularly when threatening weather conditions exist.
- Be especially cautious at night when it is harder to recognize flood dangers.

Flood Insurance

Did you know that flood losses are typically not



Flooding on the Rock River, July 7, 2002.

covered in homeowners' insurance policies? Nearly everyone is at risk of experiencing damage from flooding.

According to the Federal Emergency Management Agency (FEMA), everyone lives in a flood zone. It's just a question of whether you live in a low, moderate or high risk area. Flooding does not just affect high risk areas however. Between 20 and 25 percent of all flood insurance claims come from medium or low risk areas.

In 1968 the U.S. Congress created the National Flood Insurance Program (NFIP). The NFIP was created in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. Anyone in a community that participates in the NFIP can purchase coverage.

Please see the Flood Safety Resources section to the left for links to more information on the NFIP and flood insurance.

**FLOODING AHEAD
TURN AROUND
DON'T DROWN**

When it comes to flooded areas or high water, Turn Around Don't Drown!

Using Climate to Predict Severe Weather Activity

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can't be complacent and expect a quiet year every time.

There are also years in which neither an El Niño nor a La Niña is occurring; these years are called "neutral" and bring their own set of climate forecasts. Neutral years do not necessarily act like "average" years; in fact, neutral years also tend to be slightly quieter, especially if the winter and early spring months are neutral. Neutral years, like El Niño years, can bring a slightly higher chance of fewer tornado days as well as a re-

duced risk for significant tornadoes. Also like El Niño years, active severe weather seasons and violent tornadoes have occurred during neutral conditions.

What does all of this mean for this year? The year began with a weak La Niña that is ongoing but is forecast to weaken into neutral conditions. Research would indicate that we will have a higher chance of an active severe weather season, especially early in the year when La Niña conditions are occurring. So far this spring, this forecast seems to be

on target as March and April brought several severe weather episodes. If conditions do become neutral later in the spring and summer, the impact is a little more unclear since the year started as a La Niña, but a chance of a quieter period in the summer would be possible.

For day-to-day forecasts of severe weather, we still rely on forecasts based on current weather patterns and forecast models through the next week... so stay tuned!

Local research would indicate that we will have a higher chance of an active severe weather season...

TORNADO SAFETY

In Houses with basements: Seek shelter in the basement, under sturdy furniture if possible.

In Houses without basements: Take cover in the center part of the house, on the lowest floor, in a small room such as a closet or bathroom, or under sturdy furniture. Keep away from windows.

In Shopping Centers: go to a designated shelter area (not to your parked car).

In Office Buildings: go to an interior hallway on the lowest floor, or to the designated shelter area.

In Schools: follow advance plans to a designated shelter area, usually an interior hallway on the lowest floor. If the building is not of reinforced construction, go to a nearby one that is, or take cover outside on low, protected ground. Stay out of auditoriums, gymnasiums, and other structures with wide, free-span roofs.

In Automobiles: leave your car and seek shelter in a substantial nearby building, or lie flat in a nearby ditch or ravine and cover your head.

In Open Country: lie flat in the nearest ditch or ravine.

In Mobile Homes: Mobile homes are particularly vulnerable and *should be evacuated*. Trailer parks should have a community storm shelter and a warden to monitor broadcasts throughout the severe storm emergency. If there is no shelter nearby, leave the trailer and take cover on low, protected ground and cover your head.

Record Number of Tornadoes Reported Across Illinois in April

55 tornadoes were reported across Illinois in April 2006. This breaks the previous April record of 46 set in 1998. The average number is 8.

2nd Highest for Any Month

The record for most tornadoes in any month is 75, set in May 2003. This makes April 2006, second on the list.

2006 Already 4th Highest Number for Any Year

80 tornadoes have been reported across Illinois so far this year. This ranks as the 4th highest behind annual totals of 99 in 1998, 107 in 1974, and 120 in 2003.

With the peak of the tornado season still ahead, these last two records will likely change.

Data courtesy of Chris Miller, NWS Lincoln IL

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Working Together to Save Lives

Stephan C. Kuhl

It has been nearly a full year since I arrived in Davenport to begin work as the Meteorologist in Charge of the Quad Cities National Weather Service (NWS) Office. Since that time, our forecast service area has experienced tornadoes, flash floods, baseball size hail, drought, river flooding, ice jams, bitter cold, winter storms and even thunder snow.

The mission of the NWS is to "protect life and property and enhance the national economy," and the Quad Cities NWS Office value statement says "we are committed to excellence, providing customer - oriented service through teamwork, professionalism, and integrity."



Quad Cities NWS Office staff. Photographed in December, 2005.

As the Meteorologist in Charge of the Quad Cities NWS Office, I am extremely proud of the service our team of dedicated professionals has provided to help safeguard our customers and stakeholders from the threats of severe weather. As stewards of taxpayer dollars we remain committed to

our mission. Your Quad Cities NWS Office will remain on watch 24 hours a day, 365 days a year to help protect and serve you to the very best of our ability!